Data Science Consulting

Statistics 415 / 515 • Fall 2018 • Genevera Allen

Time & Location:

Clinic: Mondays 1:00pm - 4:00pm	Location: RZR 113
Lecture: Wednesdays 3:00 - 3:50pm	Location: RZR 113

Instructor:

Genevera Allen
Office: Duncan Hall 2080
Email: gallen@rice.edu
Office Hours: By appointment.

Course Description:

Students in this course will advise clients in a data science consulting clinic, learn best practices in consulting, and gain exposure to a variety of real data science problems.

Course Overview:

The main component of this course will be a data science consulting clinic where students will advise clients with data science problems. Clients will come from cross the Rice community as well as the Texas Medical Center and local community organizations (government and non-profit). During the consulting clinic, the instructor will quickly assess the needs of each client and assign them to a small group of students with relevant expertise for help. The instructor will then supervise the student groups and provide input throughout the clinic. After the clinic, student groups will be required to write up a standardized report for each client. During an additional lecture hour, the class will meet to review problems brought into the clinic each week and learn best practices in data science consulting.

Course Objectives & Outcomes:

Students will learn best practices in data science consulting and be exposed to a variety of real data science problems. Students completing this course should be able to (i) listen and ask questions of clients to ascertain the data science challenges, (ii) formulate challenges into coherent data science problems, (iii) provide guidance or simple solutions on the identified problems, and (iv) communicate with clients orally and in reports to help them understand the problems, solutions, and how to interpret results.

Course Organization & Schedule:

The first two weeks of the course will include a crash course on data science consulting as well as outreach to advertise the clinic to potential clients. The first two weeks of clinic time will include lectures on basic consulting skills and the process of data science consulting as well as visits by clients for model consulting interactions and mock consulting sessions. Additionally, students will be asked to advertise the data science consulting clinic at Rice and beyond by posting fliers and sending advertising emails. The data science consulting clinic will open the third week of classes and continue through the end of the semester. During the lecture hour, students will briefly present case studies from the clinic. These will be discussed as a class to decide on the best recommendations for the clients and also so that other students can learn about new problems.

Coursework:

The major requirement of this course is to attend and participate as a consultant in the clinic. Each team of students working with a client will also be required to write a standardized client report and present a brief case study in the lecture hour. In addition to the coursework associated with client interactions, each student will be required to complete two individual data analysis assignments and two reflection essays. The individual data analysis assignments will cover data sets and problem types covered in the course and will test student's abilities to correctly frame and complete an applied data science problem. A midterm and final reflection essay will offer students a chance to reflect on their strengths and weaknesses as a consultant and demonstrate growth through the course of the semester.

Weekly Process & Assignments:

Mondays	1-4pm	Clinic - Meet with clients
Wednesday	12pm	Client Report Due (to instructor)
	3pm	Lecture hour - Oral presentations by consultant teams
Friday	12pm	Client Report Revision Due (to instructor & client)

Non-Recurring Assignment Dates:

Advertising Ideas		Due: August 27th
Individual Assignment #1	Assigned: September 12th	Due: September 26th
Midterm Reflection		Due: October 17th
Individual Assignment #2	Assigned: October 31st	Due: November 14th
D2K Learning Lab Showcase		
Final Reflection		Due: November 30th

Grading:
Attendance & Participation: 40%
Written consulting reports: 30%
Oral presentations: 10%
Individual Assignments & Essays: 20%

A separate document will cover the specific format and requirements of the written client reports, individual assignments, and reflection essays along with detailed grading rubrics.

Attendance: Students may miss one clinic and one lecture hour without penalty. Each additional clinic missed will result in a 5% grade reduction and each lecture missed a 2.5% reduction. No exceptions.

Stat 415 vs. 515:
Graduate students should enroll in Stat 515 and undergrads in Stat 415. Graduate students will be expected to serve as leaders and major technical contributors on their consulting teams.

Book-keeping:
Records will be kept on all clients that come to the clinic through a client in-take form that consultants fill out and as part of the standardized client reports student teams write. This process will be reviewed in class.

Students with a documented disability requiring accommodations should speak with the instructor during the first two weeks of class.

This syllabus is subject to change with reasonable advance notice by the instructor.